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Amendments to the ClaimsListing of Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1-9 (cancelled)

10. (currently amended) A method for determining the differences between the molecular interactions of two different mixtures of molecules, comprising:

labeling a first mixture of molecules and a target mixture of molecules;

introducing said first mixture of molecules to a combinatorial library of solid phase supports;

incubating said combinatorial library with said first mixture of molecules;

performing a first marking step to mark those of said solid phase supports that have a molecule of said first mixture bound to them;

introducing said target mixture of molecules to said combinatorial library;

incubating said combinatorial library with said target mixture of molecules;

obtaining a first image showing as marked those of said solid phase supports that have a molecule of said first mixture bound to them;

performing a second marking step to mark those of said solid phase supports that have a molecule of said target mixture bound to them;

obtaining a second image showing as marked those of said solid phase supports that have a molecule of said target mixture bound to them; and

creating a third image identifying those of said solid phase supports that have a molecule of said target mixture bound to them, wherein said third image is created by comparing said first image and said second image;

wherein said first and said second images are graphical images, and said third image is created by comparing said first and said second images on a pixel-by-pixel basis; and, further, wherein said first image is image "A," said second image is image "B," and said third image is created by applying a formula $(B-A)/A$ on a pixel-by-pixel basis.

11. (cancelled)

12. (cancelled)

13. (currently amended) A method for determining the differences between the molecular interactions of two different mixtures of molecules and identifying a ligand specific for a molecule in one of the mixtures, comprising:

labeling a first mixture of molecules and a target mixture of molecules;

introducing said first mixture of molecules to a combinatorial library of solid phase supports;

incubating said combinatorial library with said first mixture of molecules;

performing a first marking step to mark those of said solid phase supports that have a molecule of said first mixture bound to them;

introducing said target mixture of molecules to said combinatorial library;

incubating said combinatorial library with said target mixture of molecules;

obtaining a first image showing as marked those of said solid phase supports that have a molecule of said first mixture bound to them;

performing a second marking step to mark those of said solid phase supports that have a molecule of said target mixture bound to them;

obtaining a second image showing as marked those of said solid phase supports that have a molecule of said target mixture bound to them;

creating a third image identifying those of said solid phase supports that have a molecule of said target mixture bound to them, wherein said third image is created by comparing said first image and said second image;

isolating one of said solid phase supports identified in said third image; and

determining the chemical structure of a ligand on one of said isolated solid phase supports;

wherein said first and said second images are graphical images, and said third image is created by comparing said first and said second images on a pixel-by-pixel basis; and, further, wherein said first image is image "A," said second image is image "B," and said third image is created by applying a formula $(B-A)/A$ on a pixel-by-pixel basis.

14. (cancelled)

15. (cancelled)

16. (withdrawn) A method for identifying a ligand specific for a target molecule, comprising:

labeling a target molecule;

incubating a combinatorial library of solid phase supports with a label binder;

performing a first marking step to mark those of said solid phase supports that have a molecule of said label binder bound to them;

introducing said target molecule to said combinatorial library;

incubating said combinatorial library with said target molecule;

obtaining a first image showing as marked those of said solid phase supports that were marked in said first marking step;

performing a second marking step to mark those of said solid phase supports that have a target molecule bound to them;

obtaining a second image showing as marked those of said solid phase supports that have a target molecule bound to them;

creating a third image identifying those of said solid phase supports that have a target molecule bound to them, wherein said third image is created by comparing said first image and said second image;

isolating one of said solid phase supports identified in said third image; and

determining the chemical structure of a ligand on one of said isolated solid phase supports.

17. (withdrawn) The method of Claim 16, wherein said labeling is performed by biotinylation, and further, wherein said label binder is streptavidin-alkaline phosphatase conjugate.

18. (withdrawn) The method of Claim 16, wherein said labeling is performed by the use of an antigen and corresponding antibody.

19. (withdrawn) A method of screening a combinatorial library, comprising:

labeling a target molecule;

incubating a combinatorial library of solid phase supports with a label binder;

performing a first marking step to mark those of said solid phase supports that have a molecule of said label binder bound to them;

introducing said target molecule to said combinatorial library;

incubating said combinatorial library with said target molecule;

obtaining a first image showing as marked those of said solid phase supports that were marked in said first marking step;

performing a second marking step to mark those of said solid phase supports that have a target molecule bound to them;

obtaining a second image showing as marked those of said solid phase supports that have a target molecule bound to them; and

creating a third image identifying those of said solid phase supports that have a target molecule bound to them, wherein said third image is created by comparing said first image and said second image.

20. (withdrawn) The method of Claim 19, further comprising:

isolating one of said solid phase supports identified in said third image; and

determining the chemical structure of a ligand on one of said isolated solid
phase supports.